



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/705,977 | 11/13/2003 | Shunichiro Masaki | 100021-00134 | 6780 |
| 4372 | 7590 | 03/24/2005 | EXAMINER | |
| ARENT FOX KINTNER PLOTKIN & KAHN 1050 CONNECTICUT AVENUE, N.W. SUITE 400 WASHINGTON, DC 20036 | | | WAMSLEY, PATRICK G | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2819 | |

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

| | | | |
|------------------------------|--------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/705,977 | Applicant(s) MASAKI, SHUNICHIRO | |
| | Examiner Patrick G. Wamsley | Art Unit 2819 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 5-10 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 11-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>11/13/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election of Species

Claims 5-10 and 16 are hereby withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election of the species shown in Figure 4, readable upon claims 1-4 and 11-15, was made **without** traverse in the reply filed on 01/31/2005.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

Claims 11-14 are objected to because of the following informalities:

Claim 11, line 2: Change "signal is" to -- signal is a --

Claim 11, line 3: Change "signals" to -- signal --.

Claim 11, line 5: Change "signals" to -- signal --.

Claim 12, line 2: Change "signals are" to -- signal is a --.

Claim 12, line 3: Change "signals" to -- signal --.

Claim 12, line 7: Change "signals" to -- signal --.

Claim 13, line 2: Change "signals are" to -- signal is a --.

Claim 13, line 6: Change "one clock signal" to -- one phase --.

Claim 13, line 7: Change "signals" to -- signal --.

Claim 14, line 4: Change "signals" to -- signal --.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites the limitation "said first conductivity type control transistor" on lines 3-4. There is insufficient antecedent basis for this limitation in the claim 1.

Applicant should amend claim 11 to depend upon claim 4.

Claim 15 recites the limitation "said first conductivity type control transistor" on line 2. There is insufficient antecedent basis for this limitation in the claim 1. Applicant should amend claim 11 to depend upon claim 4.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior Art, hereafter APA, in view of U.S. Patent 6,175,885 to Marbot et al, hereafter Marbot.

As shown in Figure 1, APA discloses a multiplexer circuit comprising a load circuit [101] and a plurality of switching elements [120-123] connected in parallel between first [V_{dd}] and second [V_{ss}] power source lines. Unlike claim 1, APA does not describe a series connection of switching elements.

Marbot discloses a serial to parallel converter having master [10] and slave [12] sections. Marbot's teachings are germane to APA because a serial to parallel converter has an inverse function relative to a parallel to serial converter. Due to Marbot's master-slave configuration, transistors are arranged in series rather than in parallel, as disclosed by APA.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to have applied Marbot's transistor arrangement teachings to APA. The motivation would have been to permit serial \leftrightarrow parallel conversion of high frequency signals, as disclosed by lines 44-46 of column 1 in Marbot. In the combination, changing APA's transistor configuration into a series pattern would have required a rearrangement of the clock signals, in a pattern similar to the one shown by Marbot.

For claim 2, APA outputs serial data [SD] from a node between the load circuit [101] and the switching elements [120-123].

For claim 3, APA inherently provides logic cells for data signal lines.

For claim 4, Marbot provides inverters [INV] as well as transistors. In the combination, control transistors would have linked Marbot's inverters to APA's power source lines.

For claim 11, APA provides a four-phase [$\phi 0$ - $\phi 3$] clock signal.

Art Unit: 2819

For claims 12 and 13, the decision whether to use a 50% or 75% duty ratio would have been determined on the basis of the environment. No criticality has been attached to these limitations, as either duty ratio value appears functional. Moreover, these species, respectively presented in ¶0046 of page 3 and ¶0065 of page 5 appear to be obvious variants of each other.


For claim 14, APA's internal four-phase clock must inherently be derived from an external clock generator.

For claim 15, APA provides n-channel type MIS transistors [120a-120c].

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 6,856,171 to Zhang discloses synchronization of multiplexers and demultiplexers. U.S. Patent 5,990,813 to Ten Eyck couples a parallel to serial converter [132] to a serial clock [124]. U.S. Patent 5,982,309 to Xi et al provides a parallel to serial converter having a selectable bit width mode. U.S. Patent 5,959,601 to Ho et al provides serial transmission of a parallel input. U.S. Patent 5,959,559 to Weder shows a parallel-to-serial converter. U.S. Patent 2,877,357 to Pearsall et al uses transistor circuits having parallel inputs [15] and serial outputs [10].

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick G. Wamsley whose telephone number is (571) 272-1814. The official facsimile number is (703) 872-9306. An alternate facsimile number, (571) 273-1814, should only be used for unofficial documents.


Patrick G. Wamsley
March 16, 2005